

ABSTRACT

A disposable heater tube for use in a machine testing the thermal oxidation characteristics of a fuel. The heater tube has a uniform and consistent work-hardened surface finish formed by burnishing. The finish is bright, smooth, and reflective and lacks the minute scratches. A process is also provided for burnishing the surface of a disposable heater tube. A burnishing machine is provided having a plurality of equally-spaced tapered rollers that roll around and bear against the inversely tapered inside surface of a rotating mandrel. A blank or raw heater tube is inserted between the tapered rollers inside the rotating mandrel. The tapered rollers are drawn inwardly against the outer surface of the blank or raw heater tube with just enough pressure to work harden the outer surface without elongating the tube.